

# Postoperative Delirium in Older Inpatients: A survey of Nursing Staff Knowledge

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## Abstract

**Background:** Postoperative delirium is common in the elderly and is associated with poor outcome. However, its diagnosis is often missed or delayed. Nursing staff is at the frontline and plays a crucial role in the early detection and management of delirium. This study was designed to explore the knowledge and attitudes of nursing staff about delirium in the scope of an educational program implementation. **Subjects and Methods:** Qualitative and quantitative analyses conducted in four surgical wards and one intensive care unit in an Academic Hospital in India. A questionnaire was administered to 121 nurses and nursing assistants and semi structured interviews were conducted. **Results:** A total of 89 questionnaires were completed (response rate of 73.55%). Regarding symptoms, most of the nursing staff knew about disorientation and incoherent speech. However, few knew about acute onset and fluctuation, and the hypoactive form of delirium was virtually unknown. Regarding risk factors, while many knew about dehydration, drug use and the use of physical restraints, few knew about sensory impairment and infection. The staff globally knew about the main prevention measures, but knowledge on patient management was especially poor. Finally, no respondent knew about or used the Confusion Assessment Method. The qualitative analysis revealed a trivialization of delirium onset among older inpatients and the continuity of preconceived ideas on delirium, its diagnosis and its risk factors. **Conclusion:** This study provides a clearer understanding of staff learning needs and identifies potential issues to be addressed in order to increase future intervention efficacy.

**Keywords:** Delirium; Nursing staff; Knowledge, inpatient.

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## Introduction

Delirium is a syndrome characterized by fluctuating symptom course of inattention, altered level of consciousness and acute global cognitive impairment.<sup>[1]</sup> There are three forms of delirium, hypoactive, hyperactive and mixed forms, which fluctuate between the hyperactive and hypoactive phases.<sup>[2]</sup> The mixed forms account is the most common type (52%), highlighting the fluctuating course of delirium.<sup>[2]</sup> The incidence of postoperative delirium in older patients is estimated between 20 and 50%.<sup>[2]</sup> Moreover, among older patients admitted to an intensive care unit (ICU), the incidence can reach 70 to 87%.<sup>[1,2]</sup> Delirium is associated with a significant increase in morbidity and mortality, a higher risk of admission to a long-term care facility and higher healthcare costs.<sup>[3]</sup> Although delirium can be reversed through treatment of its underlying causes, many patients do not return to their baseline cognitive level.<sup>[2]</sup> In addition, in patients with dementia, cognitive decline may be accelerated.<sup>[3]</sup>

Despite its clinical significance, postoperative delirium is frequently under-recognized and misdiagnosed by nurses and physicians.<sup>[4-6]</sup> Fluctuating changes in cognitive function are commonly misattributed to dementia, depression or old age.<sup>[7]</sup> Confusion Assessment Method

(CAM) is one of the most sensitive diagnostic tools for detecting delirium [8] and measuring its severity.<sup>[9]</sup>

The nursing staff play a crucial role in the early detection and management of delirium because of their frequent contact with patients and their families.<sup>[10,11]</sup> The early detection of delirium is critical for the identification of its causes and for the continuous monitoring of its symptoms.<sup>[12,13]</sup> However, in many patients, delirium is not detected because of the nursing staff's insufficient knowledge on cognitive impairment.<sup>[14,15]</sup> Nurses' lack of knowledge about the criteria and methods of detecting delirium has been identified as a major factor influencing the under-recognition of delirium.<sup>[16]</sup> In addition, ageist stereotypes held by many health care professionals appear to represent a major key obstacle in the recognition of delirium.<sup>[14]</sup>

Therefore both knowledge of the nursing staff in terms of delirium recognition and nursing staff's perception of delirium are key factors for improving patients' outcomes.<sup>[14,17-20]</sup> The goal of this study was to provide an assessment of these parameters prior the implementation of an educational program in order to adapt educational content to staff's educational needs. For a maximum knowledge yield, it was used a mixed method approach in this study, which combine quantitative and qualitative

data.<sup>[21]</sup>

**Subjects and Methods**

**Setting**

The present study was conducted in four surgery wards and in one ICU of an Indian academic hospital. The study was reviewed and approved by an ethics committee.

**Date collection**

Mixed method survey included a quantitative and qualitative analyses.

**Quantitative data**

A questionnaire was developed through an interdisciplinary collaboration assessing nursing staff knowledge on postoperative delirium. It explored four knowledge areas: symptoms, risk factors, diagnostic tools and management. The questionnaire was self administered by nurses and nursing assistants. This questionnaire was also used in the first step of the CONFUCIUS trial, which aims to measure the impact of a multifaceted program on the postoperative delirium prevention in the elderly inpatients.<sup>[22]</sup>

**Qualitative data**

The survey questionnaire was complemented by a qualitative approach.<sup>[21,23]</sup> Field observations were performed during the 18 nursing training sessions. The training sessions were conducted during nursing shift changes and included a total of 72 day staff and 18 night staff. Each standardized session started with an “ice-breaker” question, such as, “Tell us about a recently managed patient with postoperative delirium”, followed by an open discussion on delirium symptoms and diagnosis. The data were collected from the nursing staff of wards participating in the study, starting with the collection of quantitative data.

**Data Analysis**

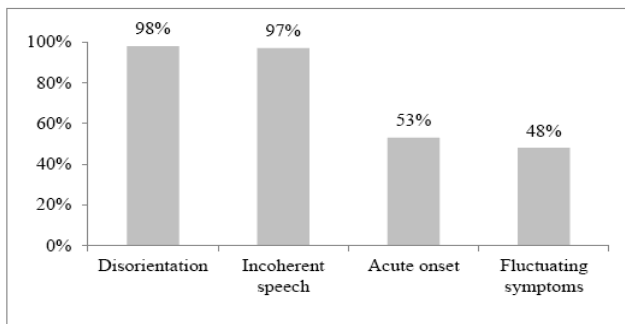
A descriptive analysis of nursing staff characteristics and response rates was performed. Continuous data are presented as mean, and standard deviation (SD) and categorical data are presented as numbers and percentages. Qualitative data were then analyzed by, using a thematic approach to identify recurrent themes.<sup>[24]</sup> Data were compared across participants.

**Results**

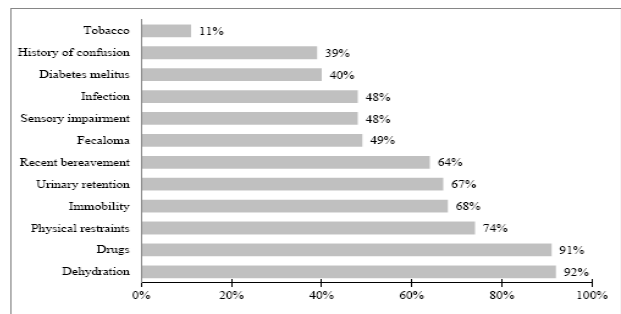
A total of 89 questionnaires (52%) were completed by 53 nurses and 36 nursing assistants. The response rates and characteristics of respondents are shown in [Table 1]. Regarding symptoms, most nurses and nursing assistants knew about disorientation (98%) and incoherent speech (97%). However, few knew about acute onset (53%) and fluctuation (48%) [Figure 1]. When questioned about behavioral disorders specific to delirium 51% of the respondents considered agitation an essential feature of delirium, while 45% considered that agitation/lethargy may alternate. Only 4% of the respondents stated that an overlethargic and hypoalert behavior could signal delirium as encountered in the hypoactive subtype. Although half of the respondents had work experience in a geriatric ward, geriatric pathologies such as fecaloma and sensory impairment were rarely identified as risk factors of delirium (49% and 48%, respectively) [Figure 2]. None of the respondents knew about or used the CAM. Knowledge on patient management was not accurate, especially regarding patient isolation (6%) and collaboration with geriatric staff (8%). However, the staff globally knew about the main prevention measures: patient reorientation with calendars and clocks (85%) and patient communication (92%).

**Table 1: Characteristics of the respondents.**

	Urology	Orthopedics	General Surgery	Oncology	ICU	Overall
Respondents, N (%)	6 (30)	19 (44)	12 (80)	18 (86)	34 (43)	89 (52)
Nurse	1 (17)	10 (53)	7 (58)	13 (72)	22 (65)	53 (60)
Nursing assistants	5 (83)	9 (47)	5 (42)	5 (28)	12 (34)	36 (40)
Work experience in the current position, Years (mean ± SD)	23.2 ± 10	10.5 ± 10	13.1 ± 9	12 ± 11	6.4 ± 9	10.4 ± 9
Specifically trained on postoperative delirium in the elderly, N (%)	0 (0)	1 (5)	0 (0)	7 (39)	7 (21)	15 (17)
Professional experience, N (%)						
Geriatrics	3 (50)	8 (42)	10 (83)	15 (83)	16 (47)	53 (60)
Neurology	0 (0)	0 (0)	5 (42)	5 (28)	5 (15)	15 (17)
Psychiatry	0 (0)	1 (5)	7 (58)	4 (22)	9 (26)	22 (25)



**Figure 1:** Nursing staff knowledge on the symptoms of delirium.



**Figure 2:** Nursing staff knowledge on the risk factors of delirium.

Three themes were explored during analysis of the semi-structured interviews. First, nursing staff knowledge was approached through examples and through the symptoms spontaneously mentioned during the open discussion. A caricature description of postoperative delirium was noted. The examples proposed by the nursing staff often included stereotyped, complicated cases of confusion, with cast, venous or urinary catheter removal, or marked by very odd delusions. The most commonly mentioned symptoms were disorientation, agitated and aggressive behavior and cognitive impairment. Delusions, ambulation, odd speech and day/night fluctuation of symptoms were less often mentioned. Anxiety, behavior modification, and alert by family members were only mentioned once. Unexpected drowsiness and state of coma were not mentioned.

“Do you remember Mister X? He slit his IV line with his teeth!” (A nurse)

“Usually, they ring, they ring... then what they ask for is totally incoherent!” (A nurse)

“First, he became confused, and then walked around in the corridors.” (A nurse)

Second, several stereotyped risk factors were presented: medication, especially anesthesia, and evening onset were well-known by the nursing staff. However, other risk factors were rarely mentioned, including pain, benzodiazepine and alcohol withdrawal, hyponatremia and dementia. Other risk factors were never mentioned, including sepsis, urinary and fecal retention, and unfamiliar environment.

“I noticed that people with delusions often have hyponatremia.” (A nurse)

“Things are even more difficult when the patients have Alzheimer’s disease.” (A nursing assistant)

“We think that it is normal... We’ve been told that after anesthesia, the patients usually rave for a week.” (A nurse)

Third, information was gathered about how postoperative delirium in older patients was perceived by the nursing staff. Their description of recent, vivid examples illustrated how postoperative delirium emerged as a problem and disruption in their regular work. Although it was perceived as a complication for the patient, it was something expected and somewhat normal for elderly patients, especially those with dementia. The estimated frequency of episodes differed among nurses, depending on the shift: “maybe once a month” for day shift nurses and “at least once a week” for night shift nurses. The nursing staff declared that they did not receive any training, information or support to handle this condition. However, in one unit, night shift nurses exhibited an informal sheet on a wall, recommending a prescription of hydroxyzine in case of agitation.

“After surgery, the patient became confused; we had a hell of a night!” (A night nurse)

“The patient is anxious, it’s strange... We don’t know, actually... We imagine that it probably has consequences for the patient.” (A nursing assistant, a night nurse)

“Residents on call rarely come when you call them at

night...” (A night nurse)

## Discussion

This study allowed us to draw up an inventory of the nursing staff’s knowledge and perception of delirium and to assess staff learning needs in order to increase future intervention efficacy.

Our findings indicate that nursing staff working with surgical patients in an Indian academic Hospital have an inadequate level of knowledge base on delirium. We found respondents were not familiar with symptoms suggesting delirium. The hypoactive form of delirium, while accounting for one third of delirium cases, was virtually unknown. In addition, knowledge of risk factors, critical to early detection, was limited and no diagnostic tools were used.

Our results are consistent with the literature showing that nurse’s knowledge of delirium is insufficient, particularly regarding risk factors.<sup>[17,18]</sup> Such limitations can be extended to medical staff since a recent survey have shown that UK training doctors, even though aware of the high prevalence and clinical significance of delirium, had poor knowledge in the diagnosis and management of delirium.<sup>[25]</sup> It is likely that this knowledge gap in healthcare professionals is a major component of the broadly reported under-recognition of delirium and stems from a historically low educational emphasis on delirium in medical and nursing schools.<sup>[26]</sup>

Consistent with the absence of adequate knowledge, analysis from the semi-structured interviews revealed the persistence of preconceived ideas on delirium, its diagnosis and its risk factors. In particular, most of the staff believed agitation to be an essential feature of delirium. This misconception is widespread and may explain why the hyperactive subtype is still considered the predominant form of delirium, and is best recognized, in spite of its lower prevalence rate.<sup>[25]</sup>

In addition, this lack of knowledge combined in respondents with what appears as a lack of awareness pertaining to the importance of delirium. This was reflected by the responses in the qualitative survey where little or nothing was known about the consequences of delirium on patients’ outcome. Moreover, qualitative survey revealed a trivialization of delirium viewed by nursing staff as a consequence of surgery on older inpatients rather than as a preventable condition. Postoperative delirium was perceived by respondents both as a natural occurrence in older patients, and as a time consuming disruption to their regular work. These findings resonate with the results of previous studies suggesting that negative beliefs and attitude are key factors in preventing effective management of older patients with delirium. Overall, our study indicates that healthcare environment in our hospital does not meet the needs of older adults.<sup>[19,20,27]</sup>

The questionnaire used was not subjected to a formal assessment of content validity. There is no previous validated questionnaire to evaluate nursing staff knowledge. This lack of validated questionnaire did not allow us to assess the validity of the questionnaire presented in the

study. This can be seen as a limitation of the present study. However, the questionnaire was established by a multidisciplinary group of healthcare professionals. Another limitation is that only the knowledge of the nursing staff in four surgical wards and in one ICU was assessed. Therefore, the results must be restricted to surgical nursing staff.

## Conclusion

Thus it is found that there is an urgent need for educational emphasis on delirium in medical and nursing schools. Given the prevalence of delirium among older patients, a change in hospital culture as well as in health care provider's training is needed.

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